

What is claimed is:

1. A substantially purified guanosine monophosphate reductase comprising the amino acid sequence of SEQ ID NO:1 or fragments thereof. *enzymatically active*

5

2. An isolated and purified polynucleotide sequence encoding the guanosine monophosphate reductase of claim 1.

3. A polynucleotide sequence which hybridizes under stringent conditions to the 10 polynucleotide sequence of claim 2.

4. A hybridization probe comprising the polynucleotide sequence of claim 2.

5. An isolated and purified polynucleotide sequence comprising SEQ ID NO:2 or 15 variants thereof.

6. A polynucleotide sequence which is complementary to the polynucleotide sequence of claim 2 or variants thereof.

20

7. A hybridization probe comprising the polynucleotide sequence of claim 6.

8. An expression vector containing the polynucleotide sequence of claim 2.

9. A host cell containing the vector of claim 8.

25

10. A method for producing a polypeptide comprising the amino acid sequence of SEQ ID NO:1 the method comprising the steps of:

a) culturing the host cell of claim 9 under conditions suitable for the expression of the polypeptide; and

b) recovering the polypeptide from the host cell culture.

b11 11. A pharmaceutical composition comprising a substantially purified guanosine monophosphate reductase having the amino acid sequence of claim 1 in conjunction with a suitable pharmaceutical carrier.

5 12. A purified antibody which binds specifically to the polypeptide of claim 1.

10 13. A purified agonist which specifically binds to and modulates the activity of the polypeptide of claim 1.

15 14. A purified antagonist which specifically binds to and modulates the activity of the polypeptide of claim 1.

15 15. A pharmaceutical composition comprising the purified antagonist of claim 14 in conjunction with a suitable pharmaceutical carrier.

20 16. A method for treating cancer comprising administering to a subject in need of such treatment an effective amount of the pharmaceutical composition of claim 15.

25 17. A method for treating a viral disease comprising administering to a subject in need of such treatment an effective amount of the pharmaceutical composition of claim 15.

18. A method for treating an inflammatory disease comprising administering to a subject in need of such treatment an effective amount of the pharmaceutical composition of claim 15.

19. A method for treating an immunological disorder comprising administering to a subject in need of such treatment an effective amount of the pharmaceutical composition of

claim 15.

20. A method for detection of polynucleotides encoding guanosine monophosphate reductase in a biological sample comprising the steps of:

*A2*

- 5 a) hybridizing the polynucleotide of claim 6 to nucleic acid material of a biological sample, thereby forming a hybridization complex; and
- b) detecting said hybridization complex, wherein the presence of said complex correlates with the presence of a polynucleotide encoding guanosine monophosphate reductase in said biological sample.

10